

# *Passiflora sanctae-mariae* in Series *Luteae* (Passifloraceae), a New Species and Series in Subgenus *Decaloba*

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**ABSTRACT.** *Passiflora sanctae-mariae*, restricted to Chiapas, Mexico, and adjacent Guatemala, is newly described and assigned to a species group that includes *P. lutea* L. of the United States. The five species of this group lack extrafloral nectaries and have very reduced or no bracts. The group is recognized as *Passiflora* series *Luteae* (Small) J. MacDougal, comb. et stat. nov.

*Passiflora sanctae-mariae* is a new species of small vining passionflower, known from nine dried collections and one living collection. The living collection, field collected by the author, was grown and observed in the greenhouse for several years, and it furnished the type collection. The species is restricted to the volcanic mountains of northwestern Guatemala and adjacent Chiapas, Mexico. It is closely related to *P. lutea* L. of the United States, the Mexican and Guatemalan *P. pavonis* Masters, an as yet undescribed species in east-central Mexico (*Passiflora dictamo* sensu Killip, not DC.), and *P. filipes* Benthham, which ranges from Texas to Ecuador. These five species lack extrafloral nectaries and have very reduced or no bracts, and form a related species alliance here recognized as a series.

**Passiflora** series **Luteae** (Small) J. MacDougal, comb. et stat. nov. *Passiflora* [no rank] *Luteae* Small, Man. S. E. Fl. 895. 1933. TYPE: *Passiflora lutea* L.

Small (1933), in his flora of the southeastern United States, subdivided the seven species of *Passiflora* listed there into four categories, one of which he named *Luteae*. It contained *P. lutea* and *P. sexflora* A. L. Jussieu. This infrageneric unit was published without rank, among the many such keying categories used throughout that work. Small's name is valid under Article 35.2 of the *Code* and serves as the basionym for the name of the series. Killip, in his taxonomic monograph of 1938, placed *P. lutea* and *P. sexflora* in subgenus *Plectostemma* Masters but separated the species into their own separate series under section *Decaloba* (DC.) Masters. He correctly associated *P. pavonis* and *P. filipes* with *P. lutea*. Killip made no reference to

Small's work, even in the bibliography of the monograph, and appears to have independently used the name *Luteae*. Killip's "series" are invalidly published, however, as they lack Latin diagnoses, and the name is now validated as a series here. The series is most easily recognized within subgenus *Decaloba* by the absence of extrafloral nectaries, extreme reduction or absence of floral bracts, and the small purple berry. Further characteristics include small flowers with the coronal filaments in two series, the outer series filiform, greenish white to greenish yellow or pale yellow, and sometimes dull purplish or dull violet at base. The ovaries are glabrous or with few short hairs. The *Passiflora bilobata* A. L. Jussieu complex of the West Indies appears to be the sister group to series *Luteae* based on floral morphology and lack of extrafloral nectaries.

The delineation and lectotypification of subgenus *Plectostemma* and the earlier and generally overlooked subgenus *Decaloba* (DC.) Reichenbach is nearly the same (see discussion in MacDougal, 1994), so the series and following new species are here placed in subgenus *Decaloba* section *Decaloba*.

**Passiflora sanctae-mariae** J. MacDougal, sp. nov.

TYPE: Cultivated at Duke University, June 1982, from stems of *MacDougal & Miley* 602 collected Jan. 1980 in Guatemala, *MacDougal & Miley* 602GR (holotype, DUKE; isotypes, BM, CAS, CR, EAP, HUA, MEXU, MO, USCG, US). Figures 1, 2b.

*Passiflora* scandens; petioli eglandulosi; folia eglandulosa bilobata vel trilobata, lobis lateralibus acutis, marginibus integris, lobo centrali obtuso vel obsoleto, vel truncata; bractae nullae; coronae filamenta biseriata, filamentis exterioribus filiformis, 2.1–3.0 mm longis; operculum plicatum; ovarium glabrum; bacca atropurpurea; semina 10–13 sulcata.

Slender perennial vine 2–5 m long, minutely puberulent throughout at the shoot tip with trichomes (0.05–)0.08–0.2(–0.3) mm long, except the adaxial surface of the lamina glabrous (or a few trichomes at the base of the primary veins), older growth sparsely puberulent to glabrescent. Stems terete, tardily glabrescent, drying subangulate and striate,



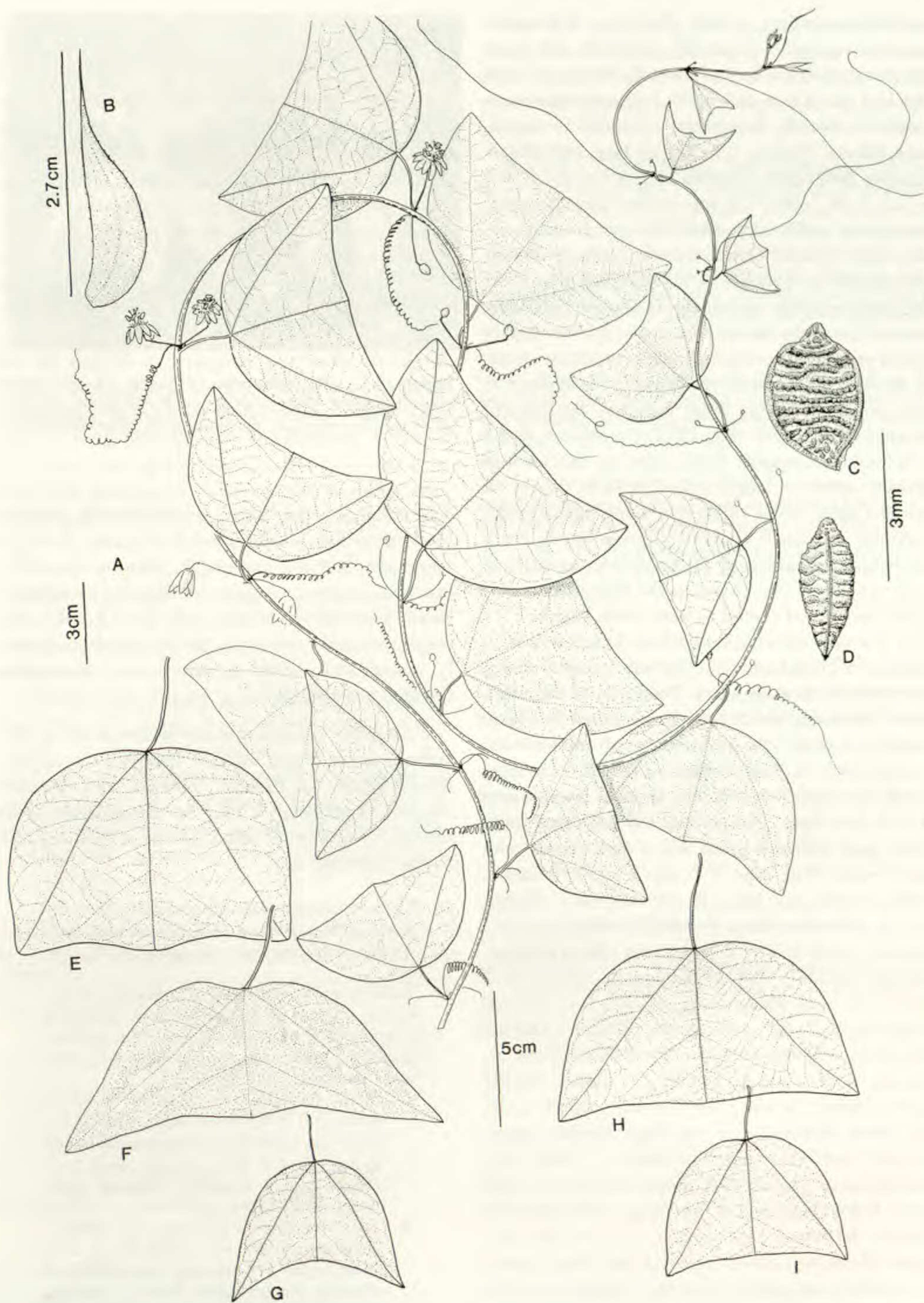


Figure 1. *Passiflora sanctae-mariae* J. MacDougal (from MacDougal & Miley 602GR, except as noted). —A. Habit. —B. Stipule. —C, D. Seed. —E–G. Leaves at prereproductive nodes; F (Steyermark 37098), G (Steyermark 37215). —H, I. Leaves at flowering nodes; H (Breedlove 50768), I (Purpus 7292).



with little secondary growth; phyllotaxy 2/5; nodes sometimes purplish (especially prophylls and junction of stipules); posture of shoot tip cernuous. Stipules (1.1–)2–3.5 × 0.3–0.5(–1.0) mm, linear-lanceolate to broadly lanceolate, attenuate to acuminate, falcate. Petioles 1.1–2.6 cm long, eglandular, minutely puberulent. Laminas at fertile nodes (2.5–)4–7.3 × (4.7–)6–11.2 cm, entire, not variegated, the general outline depressed obovate, truncate-oblate, semi-circular, or transversely truncate-elliptic, subtruncate to shallowly 2(–3)-lobed less than 0.15 the distance to the very shallowly cordate to broadly rounded base, the lateral lobes acute (rarely slightly obtuse or somewhat rounded), the central lobe obtuse to obsolete, lobes not mucronulate or the mucro 0.5 mm long or less, the angle between the primary lateral veins (62–)67–90(–112)°, the ratio of central to lateral vein lengths 1.1–1.5(–1.7), the ratio of laminar width to length 1.2–2.0(–2.3); leaves of juvenile plants often variegated along lateral veins, narrowly depressed obovate to transversely truncate-elliptic in outline, 2(–3)-lobed to  $\frac{1}{3}$  the distance to the base, the angle between the lateral veins 60–130°, the ratio of central to lateral vein lengths 1.3–2.1, the ratio of laminar width to length 1.2–3.6; laminar nectaries absent. Tendrils straight during development at shoot apex. Prophylls of the vegetative ramifying bud 2, broadly lanceolate to ovate, usually purplish, long acuminate or 3-toothed with central tooth caudate. Peduncles 1.1–2.6 cm long, geminate, uniflorous. Bracts absent. Hypanthium 4.5–5 mm diam., flowers ca. 1.5 cm diam., suberect, pale yellowish green with a dark center, with faint sweet odor; stipe 3–6 mm long (to 8 mm in fruit); sepals 7.5–10.5 × 2.8–4.2 mm, elliptic-oblong to ovate-oblong, rounded to subacute, ecori-culate; petals 5–8 × 2.4–2.6 mm, oblong to ovate-oblong, rounded, whitish; filamentous corona in 2 series, the outer filaments ca. 37–40, 2.1–3.0 mm long, ca. 0.2–0.3 mm diam., filiform, curved-spreading, slightly thicker in the distal half but attenuate at the very apex, cream to whitish, basally light greenish and often with a small purplish mark, the inner filaments 1.5 mm long, clavate, erect, purplish with pale apex; operculum 1.5 mm long, membranous, plicate, dark purple; nectary not concave; limen (disk) ca. 2.0 mm diam., uniformly dark purple, the raised edge only ca. 0.2 mm high; staminal filaments connate 3.1–4.1 mm along androgynophore, unmarked except dark purple at junction with limen, the free portions ca. 3–3.5 mm long, unmarked; anthers 2.8–3.1 mm long, not marked with purple; ovary 1.5–1.9 × 1.2–1.5 mm, widely ellipsoid, glabrous, light green; styles ca. 3–3.5 mm long; stigmas ca. 0.8 mm diam., cream. Fruit 1.1–

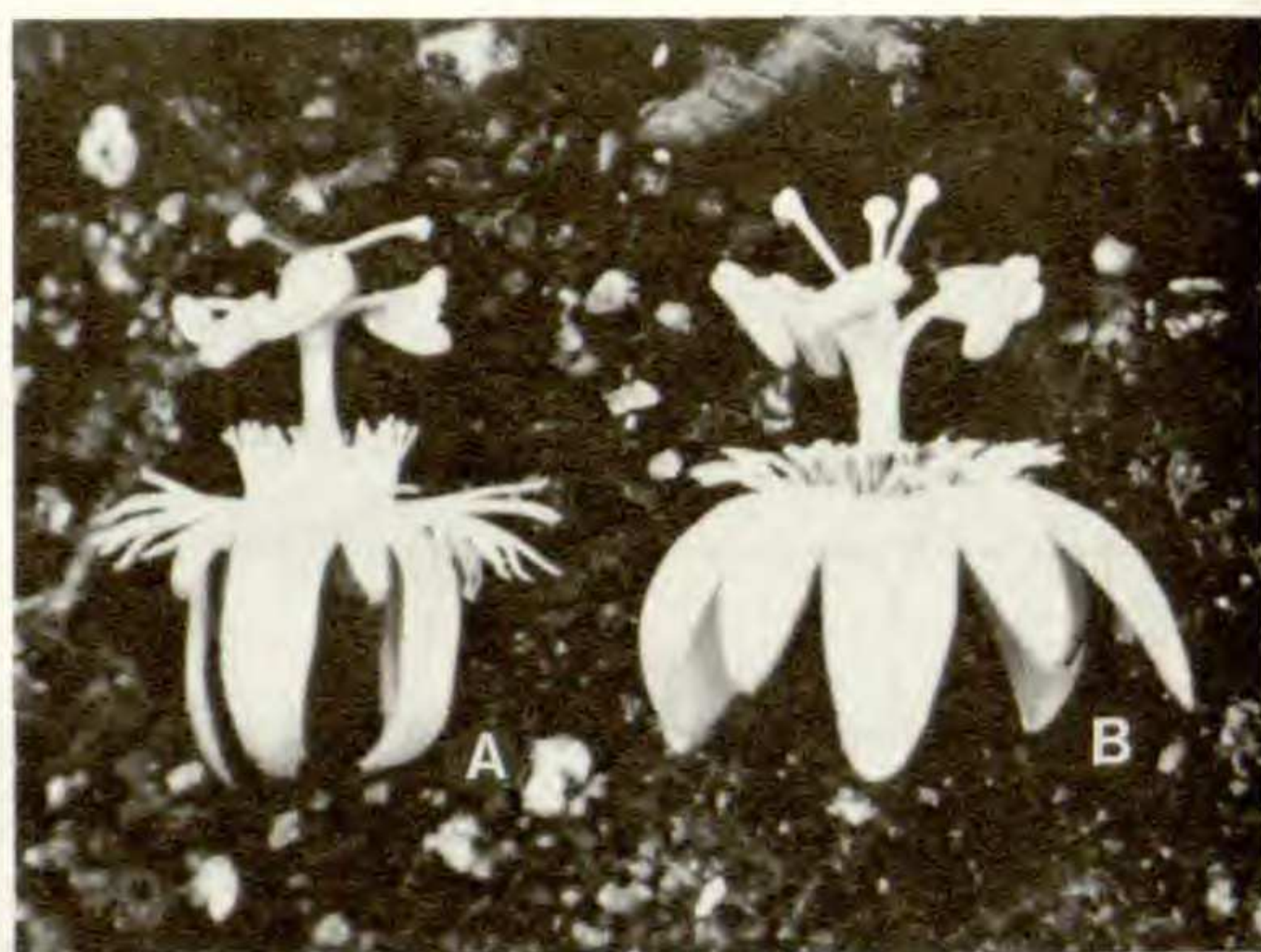


Figure 2. —A. Silhouette of flower of *P. filipes* (MacDougal & Miley 579GR). —B. Silhouette of flower of *P. sanctae-mariae* (MacDougal & Miley 602GR).

1.4 × 0.9–1.1 cm, widely ovoid-ellipsoid, purplish black, estipitate; seeds 3.0–3.3 mm long, 2.0–2.3 mm wide, 1.2–1.3 mm thick, obovate to widely obovate, nearly symmetric to slightly campylotropous, transversely sulcate with 10–13 sulci, the ridges somewhat verrucose, the chalazal beak broadly conical and slightly inclined toward the raphe. Germination epigeal.

*Passiflora sanctae-mariae* is restricted to the western slopes of the Serrania Transistmica, or Cordillera Madre, of Chiapas, Mexico, and adjacent western Guatemala. It may be distinguished from the other members of series *Luteae* in Mesoamerica by the following key.

- 1a. Plant completely glabrous; peduncles (1.5–)3–5(–6) cm long; petals 3–4.5(–5) mm long; seeds usually 3–4(–5)-sulcate; elevation 1100 m or less ..... *P. filipes*
- 1b. Plant minutely puberulent to pubescent (except adaxial surface of lamina) at least on young growth and petioles; peduncles 1.1–2.6 cm long; petals 5–8 mm long; seeds usually 6–13-sulcate; elevation 1300–2800 m.
  - 2a. Stems pubescent, or sparsely so below; leaves 1.5–5.5(–7) cm wide; corona 3–5 mm long; operculum pale greenish; androgynophore 4.8–5.5 mm long; seeds 6–7-sulcate (rarely irregularly rugose); elevation (1350–)1900–2800 m ..... *P. pavonis*
  - 2b. Stems minutely or sparsely puberulent, or glabrescent below; leaves (4.7–)6–11.2 cm wide; corona 2–3 mm long; operculum dark purple; androgynophore 3.0–4.1 mm long; seeds 10–13-sulcate; elevation 1300–1500 m ..... *P. sanctae-mariae*

*Passiflora sanctae-mariae* was collected in the field in flower and fruit, then cultivated as a single



individual 1980–1986 at Duke University, with the type specimens collected in June 1982. Observations made on living material allowed the detailed descriptions of the flowers provided above. The flowers opened in the greenhouse around midday and closed in the late afternoon (the other species in the series open in early to mid-morning and close in the early to late afternoon). No autogamy was observed in six years of cultivation, and fifteen self pollinations failed to set fruit, good evidence that the species is self-incompatible.

Fruits and seeds are known only from my field collection; the number of seeds per fruit was 26, 29, 30, and 38 + 2 aborted, i.e., seeds 26–40 ( $N = 4$ ). The number of seeds per fruit is significantly higher than its relatives in the series, which range from 2 to 12 (MacDougal, unpublished). A few of the seeds were germinated in the greenhouse to determine germination type, but the seedlings were not grown. The germination type is epigeal with elliptic foliaceous cotyledons, the norm for the genus, but is worth noting because the close relative *Passiflora lutea* has hypogeal germination, extremely rare in the genus (MacDougal, 1994). Germination type for the other species in the section is unknown.

As is the case in many of the passifloras in section *Decaloba*, the leaves of the juvenile plants of this species are often variegated (cf. Fig. 1F), but this condition is not retained at reproduction. The leaves tend to be larger than the other species of the section and are characteristically apically truncate or subtruncate, often giving the leaves a hemispherical or bat-wing shape. The common name *ala murciélago* is attached to some of the specimens, a name generally associated with many of the bilobed passifloras in northern Mesoamerica. One collector noted its use as a diuretic, a use also shared by several other bilobed passifloras in this area.

*Passiflora sanctae-mariae* is found only in premontane and lower montane wet forest. In Quezaltenango it is associated with *P. prolata* Masters, *P. helleri* Peyritsch, *P. biflora* Lamarck, and *P. membranacea* Benth.

This species is dedicated to the Blessed Mother who is the namesake of the volcano where the clone of the type was collected, and who bore Jesus Christ whose sufferings are commemorated in the generic name.

**Paratypes.** GUATEMALA. **Quezaltenango:** 100 m up dirt road at Km post 197 on Hwy. 9S ca. 8 km below tunnel near Santa María de Jesús, old finca Pirineos on slopes near Volcán Santa María, ca. 1340 m, 20 Jan. 1980 (fl, fr), MacDougal & Miley 602 (BM, DUKE, F, MEXU, MO); rich forested slopes along Quebrada San Gerónimo, finca Pirineos, lower S-facing slopes of Volcán Santa María between Santa María de Jesús and Calahuaché, 1–2 Jan. 1940, Steyermark 33331 (F); top of ridge between finca Pirineos and finca Soledad, lower S-facing slopes of Volcán Santa María, 1300–1400 m, 5 Jan. 1940, Steyermark 33525 (F). **San Marcos:** halfway up slopes above finca El Porvenir on “Todos Santos Chiquitos,” lower S-facing slopes of Volcán Tajumulco, 1300–1500 m, 7 Mar. 1940, Steyermark 37098 (F), Steyermark 37215 (F). MEXICO. **Chiapas:** Mpio. de Angel Albino Corzo, above finca Tuxtepec, 1380 m, 21 Oct. 1980 (fl), Breedlove & Strother 46719 (CAS), 7 Apr. 1981 (fl), Breedlove 50768 (CAS), 24 June 1981 (fl), Breedlove 51184 (CAS); finca Irlanda, June 1914, Purpus 7292 (UC).

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